In the Claims:

Claims 1-24 (Cancelled).

25. (Currently Amendment) A method for mitigating multipath in a digital television signal (DTV) that is ATSC DTV compliant, the method comprising:

generating a training sequence that is ATSC DTV compliant;

multiplexing the training sequence ~~reference data~~ with DTV data to generate a multiplexed DTV data stream with the training sequence embedded therein;

modulating the multiplexed DTV data stream for transmission;

receiving a transmitted DTV signal;

detecting correlation peaks in the received DTV signal based upon the multiplexed ~~reference data;~~ training sequence embedded therein; and

using the detected correlation peaks to mitigate multipath in the received DTV signal.

Claims 26-27 (Cancelled).

28. (Previously Presented) A method according to Claim 25 wherein the training sequence ~~reference data~~ is based upon a priori knowledge of the DTV data.

29. (Previously Presented) A method according to Claim 28 wherein the a priori knowledge includes modulation characteristics of the DTV data.

30. (Previously Presented) A method according to Claim 29 further comprising estimating the modulation characteristics of the DTV data.

31. (Currently Amended) A method for mitigating multipath in a digital television signal (DTV) that is ATSC DTV compliant, the method comprising:

estimating modulation characteristics of DTV data to be transmitted;

generating a training sequence that is ATSC DTV compliant and is ~~determining reference data~~ based upon the estimated modulation characteristics of the DTV data;

multiplexing the training sequence ~~reference data~~ with the DTV data to generate a multiplexed DTV data stream with the training sequence embedded therein; and

modulating the multiplexed DTV data stream for transmission.

32. (Currently Amended) A method according to Claim 31 further comprising:

receiving a transmitted DTV signal;

detecting correlation peaks in the received DTV signal based upon the multiplexed ~~reference data;~~ training sequence embedded therein; and

using the detected correlation peaks to mitigate multipath in the received DTV signal.

Claims 33-34 (Cancelled).

35. (Currently Amended) A digital television

(DTV) system comprising:

a transmitting system comprising

a circuit for generating a training sequence that is ATSC DTV compliant,

a multiplexer for multiplexing the training sequence ~~reference data~~ with DTV data that is ATSC DTV compliant to generate a multiplexed DTV data stream with the training sequence embedded therein,

a modulator connected to said multiplexer for modulating the multiplexed DTV data stream, and

a transmitter connected to said modulator for transmitting a DTV signal based upon the multiplexed DTV data stream; and

a receiving system for receiving the transmitted DTV signal and comprising a correlator for detecting correlation peaks in the received DTV signal based upon the multiplexed ~~reference data;~~ training sequence embedded therein, and using the detected correlation peaks to mitigate multipath in the received DTV signal.

Claims 36-37 (Cancelled).

38. (Currently Amended) A DTV system according to Claim 35 wherein the training sequence ~~reference data~~ is based upon a priori knowledge of the DTV data.

39. (Previously Presented) A DTV system according to Claim 38 wherein the a priori knowledge includes modulation characteristics of the DTV data.

40. (Previously Presented) A DTV system according to Claim 39 wherein said multiplexer comprises an estimator for estimating the modulation characteristics of the DTV data.

41. (Previously Presented) A DTV system according to Claim 35 wherein said receiving system comprises a digital television.

42. (Currently Amended) A digital television (DTV) comprising:

an input for receiving a transmitted DTV signal that is ATSC DTV compliant and comprising ~~reference data and~~ a multiplexed DTV data stream with a training sequence embedded therein; ~~that was multiplexed before being modulated for transmission;~~ and

a correlator for detecting correlation peaks in the received DTV signal based upon the multiplexed ~~reference data,~~ training sequence embedded therein, and using the detected correlation peaks to mitigate multipath in the received DTV signal.

43. (Previously Presented) A DTV according to Claim 42 further comprising a demodulator connected to said correlator for demodulating the received DTV signal.

Claims 44-45 (Cancelled).

46. (Currently Amended) A DTV according to Claim 42 wherein the ~~reference data~~ training sequence is based upon a priori knowledge of the DTV data.

47. (Previously Presented) A DTV according to Claim 46 wherein the a priori knowledge includes modulation characteristics of the DTV data.